Daniel B. Kirk-Davidoff

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AWS Truepower LLC
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Education

Massachusetts Institute of Technology
Ph.D. in Meteorology awarded February 1998.
Thesis under Professor R.S. Lindzen on ``Implications of Potential Vorticity Homogenization for Climate and Climate Sensitivity." Developed an energy balance model of the earth's climate based on an assumption of partial homogenization of potential vorticity along isentropes in the earth's atmosphere. Analyzed tropical sounding data to investigate the magnitude of convective available convective energy variations on annual and interannual time scales. National Science Foundation Graduate Fellow, 1991-1993. MIT Charney Prize recipient, 1991.

Yale University
B.S. magna cum laude, with honors in Geology and Geophysics, June, 1990.
Senior thesis on calculation of air-sea energy fluxes using data from ERICA field experiment.

Employment

AWS Truepower, a UL Company
March 2017 — Present
Lead Research Scientist
Responsible for developing Next Generation Forecast System, and for science research in support of worldwide wind and solar generation forecasting. Leads team of three scientists.

MDA Information Systems LLC
February 2010---March 2017
Chief Scientist, Climate and Weather Services
Developed and promoted powerline risk forecast web service. Developed and promoted wind and solar energy forecasting systems generating over $500,000/year in revenue. Performed climate science consulting and forensic meteorology services. Supervised team of five external consultants to produce USTDA-funded modernization plan for the Uganda Department of Meteorology.

University of Maryland, College Park
Department of Atmospheric and Oceanic Science
Adjunct Associate Professor, *February 2010 — Present*
Adjunct Assistant Professor, *February 2010---August 2012*
Assistant Professor, *January 2003—January, 2010*
Developed and taught graduate course on Boundary Layer Meteorology, undergraduate courses Weather and Climate, and Meteorology for Scientists and Engineers. Research topics include wind power interactions with weather and climate, satellite climate monitoring from space, satellite diagnosis of climate dynamics, stratospheric water vapor, dynamics of Messinian and Eocene climate, and ozone-climate connections. Approximately $500,000 research funding raised.

Harvard University
September 2000---December 2002
Research Associate
September 1997 --- August 2000
Post-doctoral Fellow,
Division of Engineering and Applied Science. Modeling of stratospheric water vapor budget. Retrieval of HDO by solar absorption spectrometry. Paleoclimate modeling. Mission planning and meteorological support for the Clouds and Radiation Experiment at the Tropical Tropopause (CARETT), flown from Costa Rica in summer, 2001.

Peer-reviewed publications

Wielicki, Bruce A., et al., 2013: Achieving climate change absolute accuracy in orbit."Bulletin of the American Meteorological Society, 94 (10), 1519-1539, doi: http://dx.doi.org/10.1175/BAMS-D-12-00149.1

Zeng, N., A.W. King, B. Zaitchik, S.D. Wullschleger, J. Gregg, S. Wang, D. Kirk-Davidoff, 2012: Ecological carbon sequestration via wood harvest and storage: An assessment of its practical harvest potential. *Climatic Change*. DOI: 10.1007/s10584-012-0624-0

Barrie, D., D.B. Kirk-Davidof, 2010: Weather response to a large wind turbine array. *Atmos. Chem. Phys.*, 10, 769-775.

Murphy, L.N., D.B. Kirk-Davidoff, N. Mahowald, B. Otto-Bliesner, 2009: Climate Implications of the Messinian Salinity Crisis using the NCAR Community Atmosphere Model (CAM3.1). *Palaeogeography, Palaeoclimatology, Palaeoecology*.**279**:41-59.

Kirk-Davidoff, D.B., J.-F. Lamarque, 2008: Maintenance of polar stratospheric clouds in a moist stratosphere. *Climate of the Past*,**4**:69-78.

Kirk-Davidoff, D.B., and D.W. Keith, 2008: On the climate impact of surface roughness anomalies. *J. Atmos. Sci*., 65:2215-2234. DOI: 10.1175/2007JAS2509.1.

Varotsos C. and D.B. Kirk-Davidoff, 2006: Long-memory processes in global ozone and temperature variations. *Atmos. Chem. Phys.,* **6**:4093-4100.

Kirk-Davidoff, D.B., R.M. Goody, and J.G. Anderson, 2005: Analysis of sampling errors for climate monitoring satellites. *J. Climate.*18:810-822.

Anderson, J.G., R.M. Goody, J. Dykema, X.Huang, D.B. Kirk-Davidoff, 2004: Absolute spectrally resolved radiance: a benchmark for climate monitoring from space. *J.Q.S.R.T.,* **85:**367-383.

Kirk-Davidoff, D.B., D.P. Schrag, and J.G. Anderson, 2002: On the feedback of stratospheric clouds on polar climate. *Geophys. Res. Letts.,* **29** doi:10.1029/2002GL014659.

Weinstock, E.M., E.J. Hintsa, D.B. Kirk-Davidoff, J.G. Anderson, A.E. Andrews, R.L. Herman, M. Loewenstein, J.R. Poloske and T.P. Bui, 2001: Constraints on the seasonal cycle of stratospheric water vapor using *in situ* measurements from the ER-2 and a CO photochemical clock. *J. Geophys. Res.,* **106:**22,707-22,724.

Kirk-Davidoff, D.B., and R.S. Lindzen, 2000: An Energy Balance Model of the Atmosphere Based on Potential Vorticity Homogenization. *Journal of Climate*, **13**:431-448.

Kirk-Davidoff, D.B., J.G. Anderson, E.J. Hintsa, and D.W. Keith, 1999:The effect of climate change on ozone depletion through stratospheric water vapor. *Nature*, **402**:399-402.

Lindzen, R.S., B.Kirtman, D.B. Kirk-Davidoff, E.K. Schneider, 1995: Seasonal Surrogate for Climate. Journal of Climate, **8**:1681-1684.

Book Chapter

Kirk-Davidoff, D.B. 2018: The Greenhouse Effect, Aerosols and Climate Change. In B. Torok, T. Dransfield, eds., *Green Chemistry, An Inclusive Approach.* Elsevier, Cambridge MA, 2018.

Non-peer-reviewed articles

Kirk-Davidoff, D.B., 2015: A weather expert explains why the big blizzard forecast seemed off. *The Daily News.* http://nydn.us/1CNzKNk

Kirk-Davidoff, D.B, et al., 2013: A Modernization Plan for Uganda's Meteorological Services. US Trade and Development Agency Final Report. Available at https://goo.gl/ZsCQtC

Kirk-Davidoff, D.B., 2013: Plenty of Wind. *Nature Climate Change*, **3:**99, doi:10.1038/nclimate1809

Kirk-Davidoff, D.B., 2012: Wind Power Forecasting. *Wind Systems,* April 2012:

http://windsystemsmag.com/article/detail/355/wind-power-forecasting

Kirk-Davidoff, D.B.. 2006: The Science and Ethics of Global Warming. *The Faculty Voice*. **19**:(4)4 **.** College Park, MD.

Kirk-Davidoff, D.B., 2008: Review of Climate Change: A Multidisciplinary Approach, by W.J. Burroughs. Accepted for publication in *EOS*.

Battisti, D., W.E. Easterling, C. Field, I. Fung, J.E. Hansen, J. Harte, E. Kalnay, D. Kirk-Davidoff, P.A. Matson, J.C. McWilliams, M.J. Molina, J.T. Overpeck, F.S. Rowland, J. Russell, S.R. Saleska, E. Sarachick, J.M. Wallace, S.C. Wofsy, 2006: Brief of Amici Curiae Climate Scientists, No. 05-1120 in the Supreme Court of the United States, Commonwealth of Massachusetts et al. v. U.S. Environmental Protection Agency et al.

Media Interviews

Baltimore Sun, Feb 4, 2007, "Is this Baltimore's Future"
NPR interview with Elizabeth Shogren: "Has the Move to Make Greener Cars Stalled?" All Things Considered, November 29, 2006
NPR interview with Richard Harris: "Air over Antarctica is Warming, British Scientists Say." All Things Considered, March 30, 2006

Collaborators

Prof. James Anderson, Harvard University; Prof. David Keith, University of Calgary; Prof. Natalie Mahowald, Cornell University; Prof. Daniel Schrag, Harvard University; Prof. Costas Varotsos, University of Athens.; Dr. Jean-Francois Lamarque, National Center for Atmospheric Research; Prof. Eugenia Kalnay & Prof. Ning Zeng, University of Maryland

Service Activities

Assistant Editor, Earth Systems Dynamics. Frequent reviewer for the National Science Foundation, and for the Journal of Geophysical Research, Geophysical Research Letters, Climatic Change, and Journal of Climate.

I have given public lectures on climate change in religious communities and university settings.

Member, University of Maryland Climate Action Plan Work Group.

Chair of the Columbia Association Watershed Advisory Committee

I was a founding member of the Commission on Energy Use and Climate Change of the City of Somerville, Massachusetts.

Honors and Awards

Dean's Award for Excellence in Teaching, University of Maryland, College Park, College of Computer, Mathematical and Physical Sciences. Awarded May, 2007.

Next Generation Fellow of the American Assembly.